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# A CULTURAL LANDSCAPE IN ANCIENT BRITTANY

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## THE AREA

Jutting into ancient Brittany on the southwest is the Gulf of Morbihan. The three or four hundred square miles of land adjacent to it, with their ninety thousand inhabitants, constitute the Morbihan Littoral. It forms part of the old massif of granites, schists, porphyries and sandstones which underlies the whole Breton peninsula. This is a land of canyon-like roadways and island studded estuaries, of gray-granite homesteads and brown-oak fishing craft. Here, only, in all Brittany does the ocean's mildness make possible the cultivation of the vine. Here the herdsman is a fisherman, and the reefer of sails turns readily to guiding a plow.

Towards the end of the Paleozoic this coastal region, together with the rest of the Massif Armoricain, was subjected to a series of granitic intrusions which pushed themselves up and thru the ancient gneisses and schists. These interjections were accompanied by powerful lateral thrusts in a north-south direction which pressed and folded all the rocks of Brittany from Finistere to Vendee into a great number of anticlines and synclines. Many parallel folds stretch east and west across the peninsula. The granite moorlands of Lanvaux and Grand-Champ are the chief local examples of these folds and they serve to wall in the coastal lands from the interior.

During subsequent ages these folded ridges were worn down into a peneplain. Uplift again followed, this time with little or no folding. Streams formed before this last great uplift intrenched themselves in the underlying rocks and it is the lower valleys of these that formed later the numerous estuaries or abers of the coast.

The soils of the Morbihan Littoral, like those of nearly all of Brittany are largely residuals. Since Pleistocene glaciation did not cover this area, small patches of alluvial loams and eolian sands are the only exceptions to these residuals. In the cool, humid climate

of Brittany the granites and schists have weathered into thin, infertile soils. Nearly all lack lime and phosphoric acid and they are never of any great depth.

In common with all of western France the Littoral shares in the climatic characteristics of the west coasts of continents in the higher middle latitudes. (The Cfb of Köppen). It has very mild winters with the few freezing temperatures that do occur lasting only for a

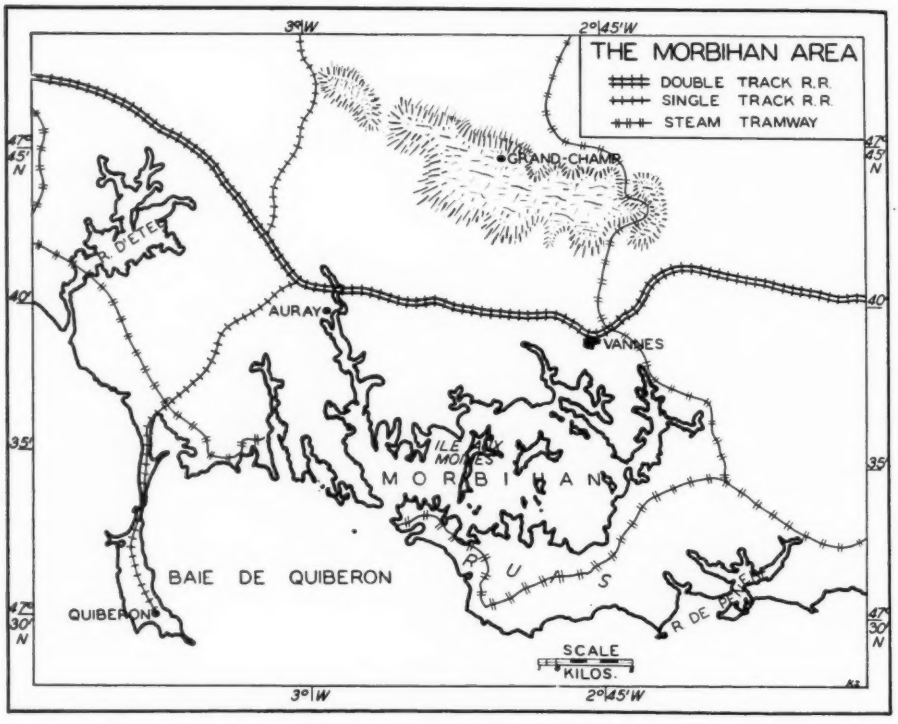


Fig. 1. The Morbihan Area

few hours or days at most. Extremely high heat is very rare during the summers, which are generally cool, cloudy and damp. Rainfall is abundant (22 to 32 inches annually) and fairly evenly distributed thru the year with an autumnal maximum. The prevailing winds along the coast are from the southwest in winter and from the west and northwest in summer. Often these are strong, especially during the winter months, when the land is not infrequently lashed by violent gales.

## The Problem

Into this ancient land Gaul and Roman, Frank and Celt, for centuries have been pouring their distinctive heritages of blood and

culture to blend with those of the still earlier Neolithic people. From all these have emerged the present day Bretons; 'seafaring landsmen' who upon the 'stage' of the Morbihan Littoral have developed their particular pattern of settlement—the visible, tangible, mappable expression of man's activities in occupying and utilizing the area. As a 'backdrop' to this stage stretches the windswept Atlantic, into which so many of the Morbihanais frequently cruise.

At the heart of geographic study is the analytical description

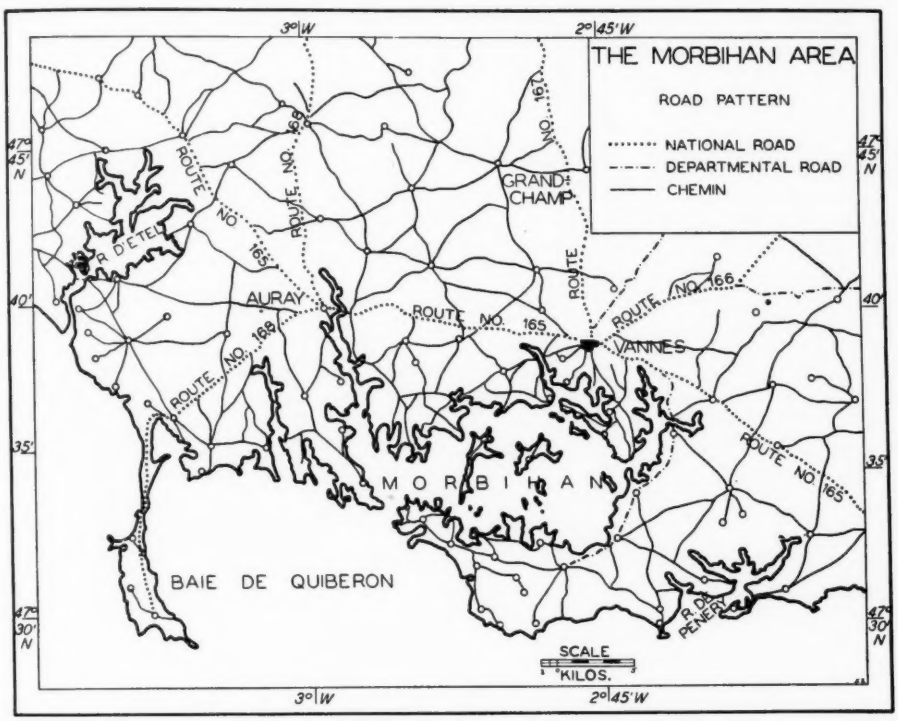


Fig. 2. The road pattern of the Morbihan area

in terms of the environment of such a settlement pattern or cultural landscape as that to be found here in the Morbihan. It is the purpose of this paper to briefly present the findings of such an analysis. For this purpose the settlement pattern may be surveyed under three heads: transportation, fields and buildings. To each of these is associated such structures, areas and activities as are functionally related to them.

## The Transportation Pattern

Over the area under consideration the population has established itself in a manner which gives a personality to the region and in a

pattern which for centuries at least has been essentially static. The unit of settlement is the 'bourg'; the tiny farm hamlet of from two or three to a dozen homesteads. Rarely are these bourgs much over a half mile apart but they are considerably more numerous in the areas closer to tide water. There are, however, two larger nuclei of human agglomeration; the small cities of Vannes (20,000) and Auray (6,000).

It is the road pattern, spreading over the land like a giant's web,

Fig. 3. The Cote Sauvage, Quiberon Peninsula's wave and wind swept granite coast

which, in its plan and character, gives distinction and significance to the cultural landscape. The oldest roads are the chemins. These are narrow dirt roads which wind in an apparently aimless fashion from hamlet to hamlet, in and out amongst the valleys, following natural gaps over the ridges and running out to the ends of the peninsulas where they frequently fork, fade into mere tracks or pathways and finally disappear—much as a river fingers out into the sea thru its delta.

Along the chemins are often to be seen roadside crosses, great monoliths, rudely carved in the Middle Ages, which in their sturdy

and strong outlines reflect the tenacity and simplicity of Breton faith down thru the centuries. Near the cross will frequently be found the lavoir or washing trough, cut and worn out of a single block of moss covered gray granite. These are the trysting places, the forums for gossip, where maid and matron foregather in sabot and coif to talk over the little happenings that make up so much of life to the dwellers in the Breton bourg.

Chemins have grown up thru the years, following the earliest tracks used by the peasants. Today they are invariably bordered by rock and earthen walls. These are from five to eight feet high and usually so covered with trees and shrubbery that the narrow roadway between reminds one of a canyon. In the spring months these chemin walls will be aflame with the yellow blossoms of the Breton gorse. But during the rest of the year their wet brownness is unrelieved by any such colorful splashings. For the whole of the 380 odd square miles in the littoral cantons there are about 870 miles of these chemins.

Fig. 4. The Breton home. Steep roofed, gray thatched and stone walled

There are in the area likewise some 23.6 miles of roads built by the Department and 67 by the National government. These—especially the National Routes—are all well graded and surfaced and like their Roman prototypes as straight as the nature of the relief permits. The roadside cross and lavoir are absent, or very infrequent, along these greater arteries of transportation. Instead one finds spaced with mathematical exactness and marked with modern uniformity, the red, white and blue kilometre stones. Vastly more practical, undoubtedly, these numbered stones, but infinitely less picturesque. Significant it is that both cross and distance marker have been fabricated from the same granite—often from the same ancient quarry.

Like the National Routes, the railroads are the product of the nineteenth century and both were in a large measure superimposed upon the ancient road system. Within the Department of Morbihan there are 145 miles of standard gauge railroad and 201 miles of the one metre steam tramway. The pattern these form is in close adjustment to the sinuosities of the coast, to the available gaps in the moorlands to the north and to the easier grades afforded by certain of the intrenched river valleys such as those of the Lizier and Blavet.

Fig. 5. Treeless Ruis. Wheat fields reach the strand line

In the nature of the traffic carried, in their directness, in their terminals and in the cities from which they enter the region, this modern transportation skeleton reflects not only local surface features but the influence of human forces from far beyond the area. There were primarily two of these: the desire to facilitate the prompt movement of troops to and from Brittany and to tie this remote section to the capital commercially.

## THE FIELD PATTERN

If the transportation routes form the skeleton of this area, it is largely the pattern of grainfields, rootcrops, orchards, pastures,

vineyards and market gardens which clothe the skeleton and are the visible manifestations of man's activities in working the soil. These fields are usually small—from a few thousand square feet to seven or ten acres—highly irregular in shape and generally bordered by the walled and wooded chemins.

In the plowed fields the chief crops that the peasants will be found cultivating are potatoes and turnips, rye, winter wheat, oats

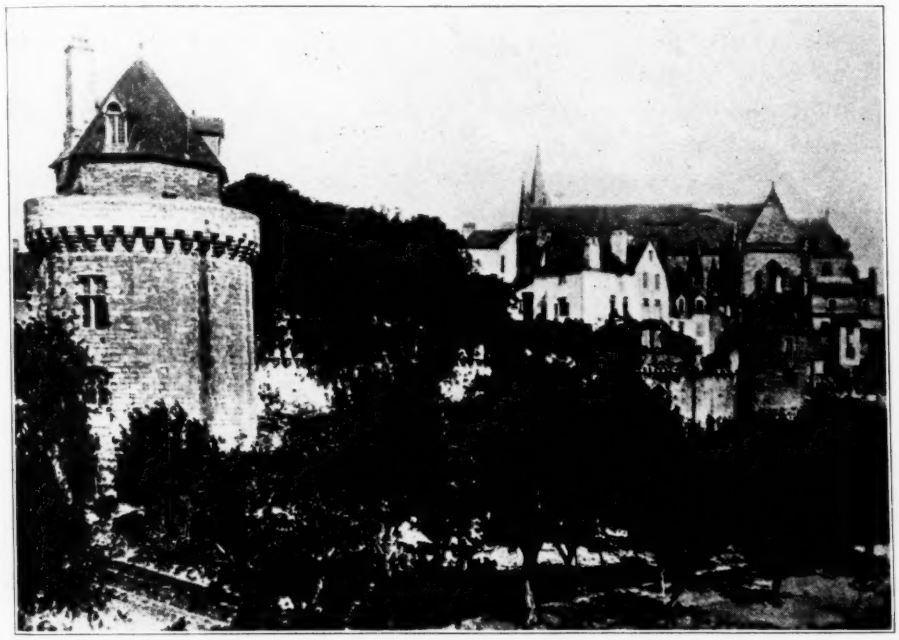

Fig. 6. The walls and roofs of Vannes. Apple orchards fill the ancient moat

and buckwheat. When isopleth maps are constructed to show the percentage of the total cultivated land devoted to each crop, they aid strikingly in interpreting the whole settlement pattern. There is a very definite 'high' for rye over the rougher, higher and damper ground inland from the coast. Here over 35 per cent of the acreage under the plow is in rye. The growing of oats likewise increases to an inland 'high,' somewhat like that for rye, with a 'low' close to the sea. Quite similar also is the isopleth pattern for buckwheat—source of the famous Breton crepes, or griddle cakes.

Contrasted with these grains is the wheat acreage which is found concentrated more densely nearer the coast, where it is flatter, drier and with warmer summers. Near the coast also, and especially in

the peninsula of Ruis where there is a wheat 'high,' do the peasants draw wealth from the sea in the shape of seaweed for fertilizer. These seaweeds—'goemens rouges'—grow abundantly on the tidal flats of the gulf, are harvested in large quantities and applied to the land essentially as is stable manure which is less than half as efficient as a fertilizer.

Isopleth maps for potatoes, turnips and for cattle likewise show a marked concentration near the coast, coinciding closely with the denser population. Market gardens engirdle the larger towns of Vannes and Auray while vineyards and some few fields of maize are found along the sea—aspects of the field pattern lacking but a few kilometres inland.

Numerous rock outcrops, frequent changes in soil types within small areas, as well as the French system of subdividing estates and the ancient feudal method of strip cultivation, all help in interpreting this complex field pattern. Coastal considerations—the many abers (estuaries) penetrating the shore, the sand-dune areas and the sections where good soils reach tidewater—are all reflected in the design of the fields. Railroads and the highways, except for the old chemins, being a relatively recent development have affected only locally the mosaic of pasture, orchard and grainfield.

## THE HOUSE PATTERN

Of the various classes of buildings, it is the gray-granite, steeply pitched home of the peasant-fisherman that epitomizes the region. About three-fourths of these have slate roofs while the rest of them are thatched. Uniformity in shape, size, color and materials is a striking characteristic of these dwellings. The rooms within them have great beamed, low ceilings and either stone or earthen floors. For heating and cooking the families rely on the big, open fireplace, while candles or kerosene lamps imperfectly light up the sooty, grimy walls. These features may appear primitive but nearly every cottage contains great carved chests and 'lits clos' which would arouse the envy of any collector of antiques.

Most of the Morbihan peasants live in little hamlets of very often less than a score of homesteads. These are usually grouped close together, apparently having been originally placed where the whims of their builders fancied. Commonly a 'bourg' will be on a local rise of ground, where two or more roads cross, and nearby will be the village gossiping place—the spring. If there are more than a dozen

families in a hamlet, a spired church with its graveyard calvary will be the center around which the villagers have built their houses, facing in any and all directions but all following architectural forms of immemorial antiquity.

Thruout most of the area the bourgs are fairly evenly distributed. In some localities, however, they are absent directly along the shore and instead will be found just inland from the windswept area of infertile sands and brackish ponds where investigation

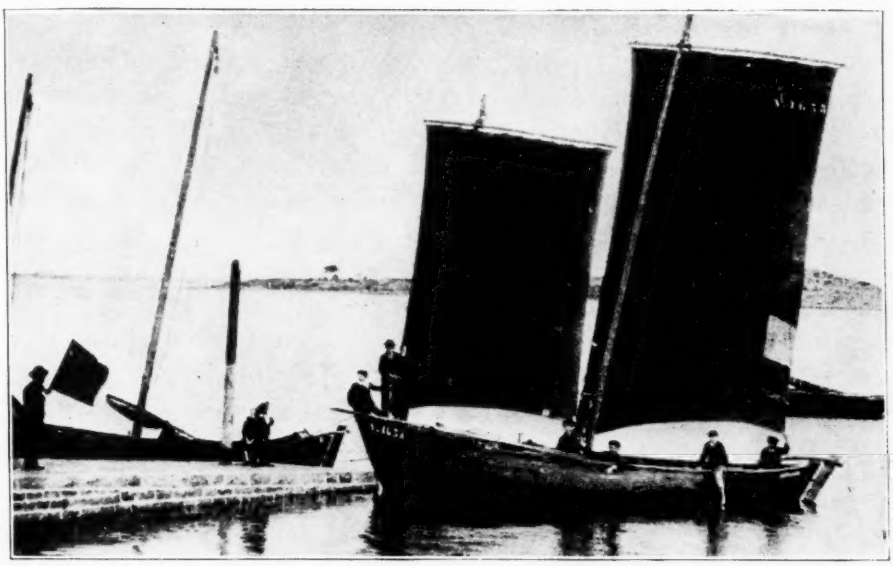

Fig. 7. A Breton fishing boat. Red square sails on the sturdy craft of these fishermen-peasants

shows that there is a chain of springs pouring out from the heavy clays and loams where these border on the sands. Or in other sections they lie far away from the National Routes at the terminals of the winding chemins.

In the construction and location of their houses definite use of pre-existing structures has often been made. On the Ile aux Moines in the Gulf of Morbihan at the tiny hamlet of Menec a neolithic cromlech forms part of a humble barnyard wall while at Carnac both the house and road patterns are very evidently in harmony with the irregularities of those famous alignments which stretch in such ghostly ranks across the almost treeless moors. Even the medieval walls and gates at Vannes appear to fit naturally into the picture

and the ancient moat is now either an apple orchard or else serves the laundress as a place in which to dry the day's washing.

## CONCLUSIONS

It is difficult to escape the conclusion, from a study of these deeply rooted settlement patterns, that they reflect, first a more or less intelligent adaptation of, and to, the environmental factors, and second, the stream of cultural inheritance which is the heritage of these Celtic speaking people. Wind swept and rain drenched tho these granite shores of the Morbihan may be, many of the sites of present day villages date back thru all the vicissitudes of history to Neolithic times. Underneath external changes and the 'gadgets' of modern civilization the geographer seems to find a stability of settlement forms. He is impressed with this static character which reflects the grim nature of the environment. Above all he senses that in the interplay of man and nature is to be found the 'soul' of the region; its distinctive 'personality' that sets it off as unique from any other area in the whole of Brittany or of France.

But if the land is the warp, the sea is the woof that the shuttle of time has woven together into the tapestry of the present day pattern of settlement. Here, in a sense, is a great geographical experiment, performed and concluded for us by the master hand of history.

# AN HACIENDA IN MEXICO

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The word "hacienda" is used in Mexico to designate a country estate of more than 2,500 acres. Individual haciendas have exceeded 250,000 acres. The Cortés mayorazgo (entailed estate), as late as the nineteenth century embraced 15 towns, 157 villages, 89 haciendas, 119 ranchos, and 5 estancias. The area of the Cortés estate was 25,000 square miles, inhabited by 150,000 persons. Juan Jaramillo owned the entire province of Xilotepeque with its 130,000 inhabitants. Juan Villaseñor y Cervantes owned nearly all of the state of Guanajuato, an area of approximately 10,000 square miles. Altho a large number of haciendas have been divided and the lands placed in the hands of the farmers, many haciendas still exist.

## FACTORS INFLUENCING UTILIZATION OF THE LAND

Location, topography, climate, and water supply are outstanding influences in the utilization of the land within the limits of the hacienda. In fact, the amount of cultivable land and the possibility of obtaining water for irrigation often determine the size of the hacienda itself.

If the hacienda is far from an urban center of large population, the hacendado (proprietor) tends to specialize in some product that can stand railroad transportation or the more costly carriage by mules on rough trails. Haciendas on the wet east slopes of the southern Sierra Madre Oriental specialize in coffee. Those at the foot of the slopes may produce bananas or sugar cane. In the valleys between the mountain ranges large areas may be planted with sugar cane, pineapples, or even cotton. Much of the land on the eastern side of the Sierra Madre Oriental south of Monterrey was planted with cotton last year. Haciendas located in dry regions far from market are likely to specialize in one of three activities—cattle on the Mesa del Norte, maguey on the drier parts of the Mesa Central, and henequen in Yucatan. Of course corn is raised wherever possible to provide subsistence for man and beast. The rougher portions of the haciendas frequently support large numbers of cattle and goats.

If a large urban population develops close to an hacienda, the hacendado usually utilizes his land just like the owner of a farm close to an American city. He tries to produce that which will sell in

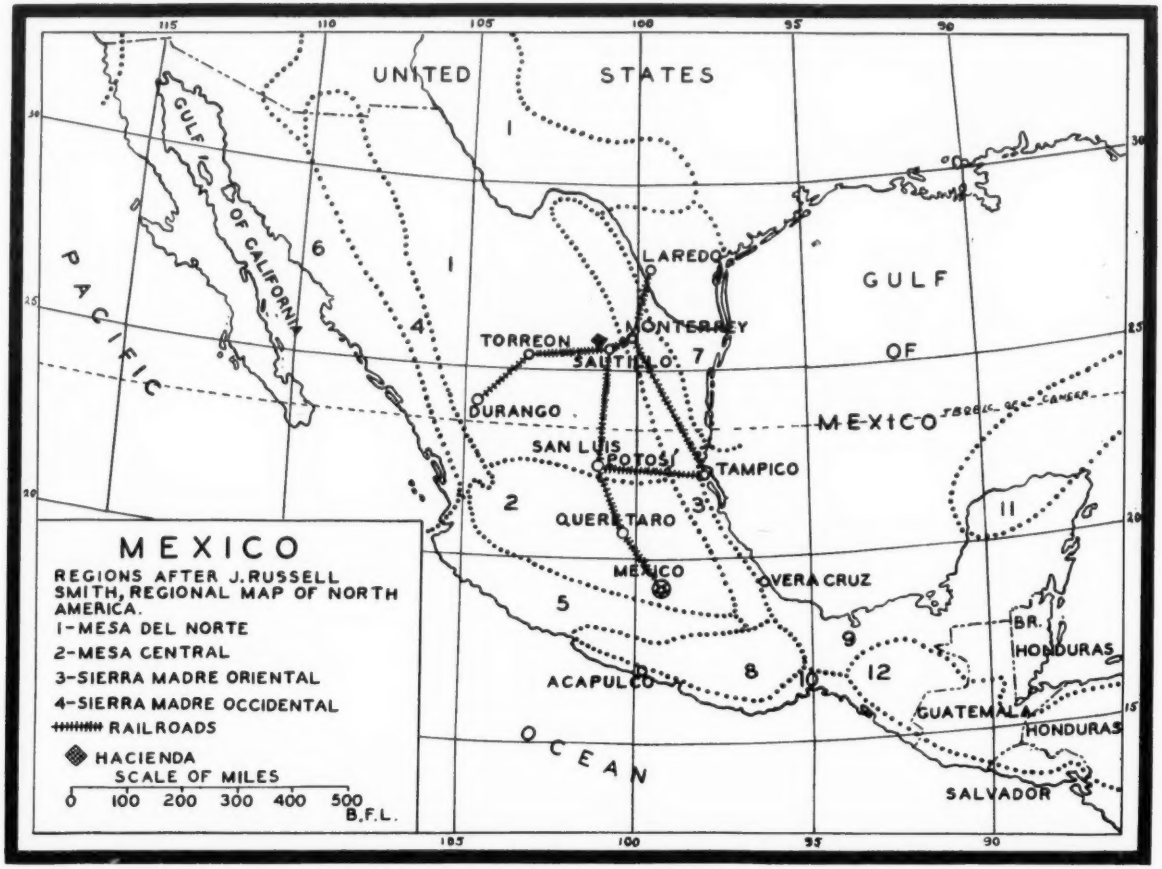


Fig. 1. Saltillo lies on the east central edge of the Mesa del Norte. The topography is like that of Nevada. Its railroad outlets are good. A paved highway connects it with Monterrey and the Pan American Highway. The highway westward to Torreon is in construction while that to the southward is yet to be built.

the nearby market. The increasing value of the land may force the owner to adopt more intensive farming methods. This endeavor will depend upon the water supply. Some Mexican haciendas display diversification in agriculture that is not even surpassed in the American corn belt.

## THE SALTILLO REGION

An hacienda upon which the writers spent some time is located close to the city of Saltillo in northeastern Mexico. Fifty-five miles northeast is the city of Monterrey with a population of 132,000. Saltillo, itself, has a population of 42,000 and is situated at an elevation of 5,280 feet. The new macadam highway which connects the two cities traverses a barren, desert region. The annual rainfall in this area ranges between 10 and 20 inches. Due to the high daily temperatures most of this rainfall evaporates before it can be utilized. However, back in the mountains on either side of Saltillo the orographic rainfall is heavier. Any agriculture that can be practiced owes its existence to this feature.

## THE HACIENDA

The hacienda near Saltillo consists of thousands of acres. Most of the land is rough, rocky mountain slopes. The scant vegetation is of the waxy-surfaced, thorny type known as xerophytic. Everything that grows here without the aid of man protects itself from the dry atmosphere. About 800 acres of the hacienda lie upon the compound alluvial fans which have been formed from the debris eroded from the mountains. Even this area of cultivable land is cut by a system of arroyos. The whole hacienda is separated from the city by a major arroyo which is fifty to seventy-five feet deep. Were it not for the water which flows from a ditch extending back into the mountains, even the cultivable land would produce little besides maguey and poor grazing.

The proximity of Saltillo, the good highway and railroad transportation to Monterrey, the railroads leading to Torreon and to Mexico City are geographic and economic influences which encourage a much more intensive use of the land than would otherwise be possible. The hacendado, like the American farmer, might have all the favorable geographic influences possible, but he cannot utilize his land to the maximum extent economically unless he has access to a market able to buy and consume his products.

## Agriculture

The hacendado has planted about ten acres in vegetables, the growing season lasting almost thruout the year. When the irrigation water is flowing between the rows of plants the field resembles similar areas in California. When the tract is dry, it might be mistaken for an area in eastern Maryland. Bordering the truck farm is the chayote arbor. This climbing plant bears a green fruit about half the size of cantaloupes. Some of the fruit is covered with thorns. Others have a smooth skin interrupted by wart-like spots. The fruit is cooked and eaten like potatoes. After the vine is several years old the root, a large bulb, is dug up and also cooked and eaten like potatoes.

Around the swimming pool, which also serves as a storage tank for irrigation water, grape vines produce fruit for the table and for wine. The grapes are the Mediterranean type, adapted to regions with low relative humidity.

Several hundred acres are covered with peach and apple trees. Between the rows of trees and around the roots of the trees flows the irrigation water. Grass grows along the edges of the ditches. When the water is flowing the orchard resembles one in the Santa Clara valley of California. When the ditches are dry one might think the area to be along the southeastern shore of Lake Michigan, or in the Ontario lowland.

The large cornfield and the tobacco patch resemble like areas in Kentucky or southwestern Ohio, except that even the corn and tobacco require irrigation water.

The drier part of the cultivable land, that portion which cannot be economically irrigated due to the excessive drainage caused by the arroyos, is planted with maguey. The maguey produces a spreading clump of long fleshy leaves with spiny margins. These leaves may be cut, soaked in water until the pulp rots, and the plant fibres drawn out. These fibres are made into ropes and mats. The bud of the plant appears in a large rosette of leaves. When a cup-shaped hollow is scooped out of the top of the bud, the depression will fill with a sweet sap producing more than a quart both morning and evening. The sap may be fermented to make a drink called pulque. The sap is also used in place of milk in the manufacture of bread. If the pulque is distilled an intoxicating liquor known as "mescal" is the final product. The leaves of the plant may be cut up and fed to livestock. Cultivation of maguey is not common in the

United States. One sees it frequently in Spain and Italy where it forms a hedge along the roads and railroads.

## LIVESTOCK

The tops of the vegetables in the truck garden furnish much green material for forage. The corn field produces grain and fodder. Grass

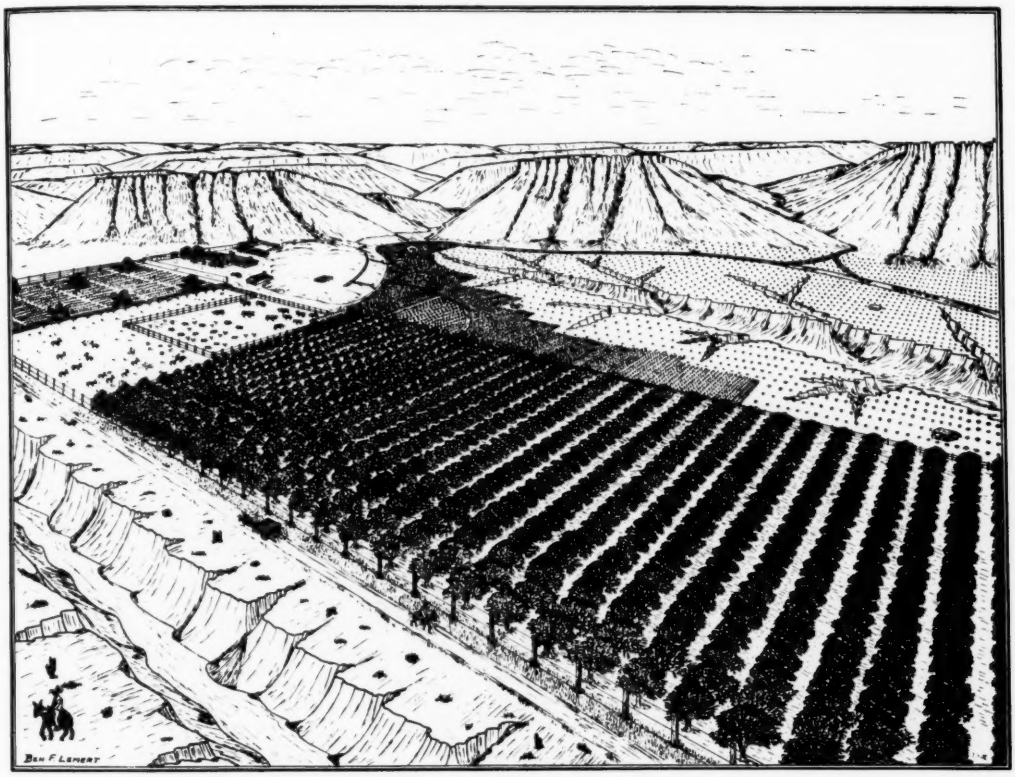

Fig. 2. This hacienda is located close to Saltillo in a region where rainfall is slight but midday temperatures are high. The natural vegetation is xerophytic. Due to the elevation and by the aid of irrigation, the hacendado produces vegetables, peaches, apples, grapes, chayote, corn, tobacco, maguey, dairy products, pork, chickens, eggs, mohair, and goatskins.

is cut from between the trees in the orchard. The cut-up leaves of the maguey are good stock food. With plenty of clean water available and food for animals a dairying industry is possible. It is economically feasible because of the access to the nearby markets. The hacienda supports a herd of about 100 dairy cows from which milk and butter fat are obtained, Altho this is a tropical region with hot

days, it is cool in the shade. The dry air at an elevation of more than a mile above sea level, does not contain much warmth if sunshine is lacking. Cool shade and cool nights favor the dairying industry.

The by-products of the dairy industry permit the raising of hogs and chickens just as the dairying regions of the United States or Denmark. The hogs produce meat and the chickens provide eggs and friers.

One more section of the hacienda, that embracing the larger part of its acreage, is also utilized. The mountain slopes are steep because they are relatively young block mountains. The scant vegetation is too poor for cattle. It will support goats. On this land a herd of several hundred goats grazes. From the goats the hacendado obtains meat, milk, and mohair. Much goat meat is sold in the Mexican markets.

Most of the hauling about the hacienda is done by motor truck. The cultivation is carried on, either by hand or with the aid of a tractor. The few donkeys to be seen serve chiefly as bicycles. When a laborer wishes to go to town he just jumps astride a donkey, kicks it in the stomach with his heels and away he goes. The manure collected from the livestock is of great value in the fertilization of the fields.

## The People

Life on this hacienda runs smoothly, but unceasingly. Early in the morning the laborers are astir. Some work in the truck garden. Men and women care for the dairy and feed the livestock. In the orchard, late in summer, there is little work except the repair of ditches and the cutting of grass. Earlier in the year extra labor for spraying and picking is obtained from Saltillo. A few men, women and children work in the corn field and the tobacco patch. One or two laborers may be busy building a cart. The goat herder starts with his herd shortly after dawn. The goats seem to know where they are going, stringing out behind the old man who walks on ahead, a stick over one shoulder, a small package containing some food in his other hand. All day they will wander over the mountain sides until the sun nears the western horizon. That is time for them to start back home.

In Mexico, as in other Latin countries, it is not uncommon for women to own and operate estates. This hacienda near Saltillo is owned and operated by a woman and it is operated efficiently. Both

during the working hours of the morning and of the afternoon the señora is out on the land, either by herself or accompanied by her foreman. She plans the work for each day. The plans include the work to be done in the truck garden, the handling of the dairy, the feeding of the stock, the work in the orchard, the corn field and the

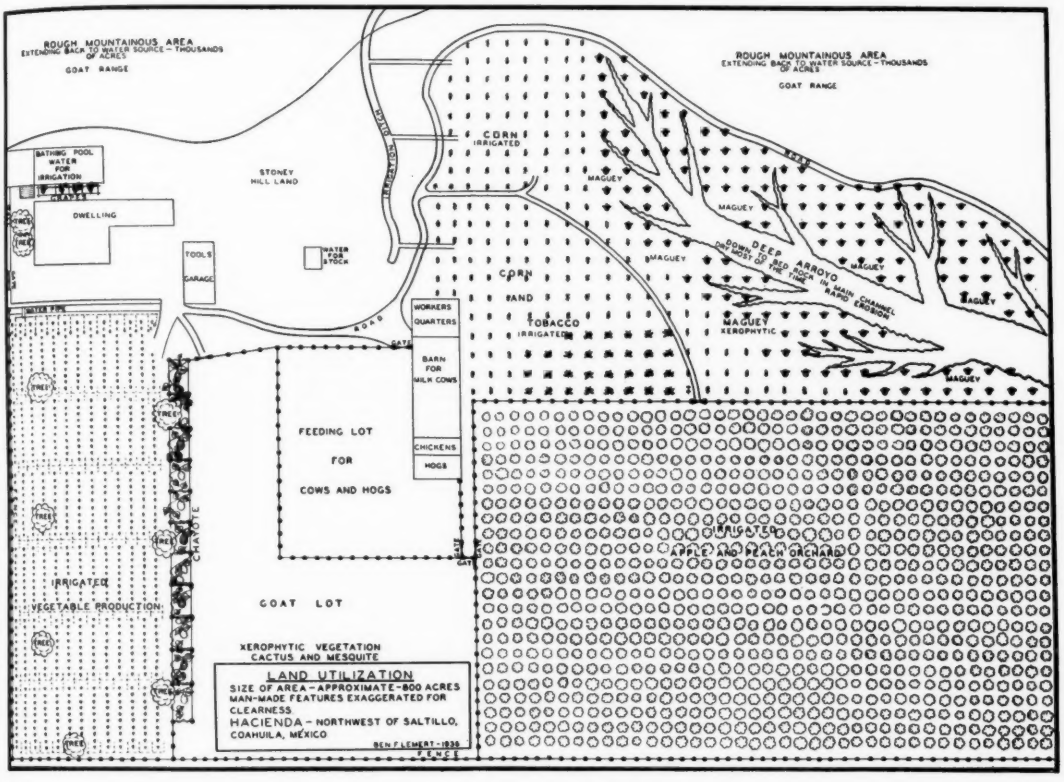


Fig. 3. A map showing the ground plan and distribution of human activities

tobacco patch. In addition to this she oversees the shipping out of the products and the purchasing of supplies. When all these duties have been performed her accounts must be kept straight. The work day is from dawn to dusk with the exception of a two-hour siesta in the middle of the day.

The evening brings leisure. The heat of the sun is gone and the air is cool. If the moon is shining, the patches of fluffy clouds in the lower atmosphere float across its face in a southwesterly direction for this is a land of the northeast trade winds. High above these clouds are other long, fleecy masses of vapor floating toward the

northeast with the normal movement of the higher air currents. The casa, the owner's dwelling, is lighted with electricity and the señora with her daughters may be listening to the radio, or singing at the piano. During periods of quiet the songs of the laborers in their huts can be heard, the same songs we have heard sung by the people who live about the Alhambra in Spain, the same tunes we have listened to around the fires of the gauchos in far away Uruguay.

Everybody on this hacienda works hard during the day. It is due to their labors that the hacienda produces its vegetables, its fruits, its dairy products, meats, and fibres. Yet when the day's work is done, the Mexicans like other Spanish peoples are inclined to sing in their leisure hours. They forget their fatigue and their disappointments of life as they sing and dream. We envy them their ability to do so.

# VALLEY CONTRASTS IN THE MISSOURI OZARKS REGION

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Differences in the salient geographic adjustments in regions of profound dissection and in regions of less rough topography are constantly being noted. Variations in human responses between the hill and valley life within mountainous areas have also furnished a common source of study for the geographer. But thus far, altho clear cut and interesting contrasts appear, studies of differences in the types of responses along the mountain valleys themselves have been few. This paper is an attempt to show not only how the geographic personality of a valley may differ from the hills surrounding it and the plains far from it, but also how it may present irregularities in make up thruout its own length.

## THE SETTING

The area chosen for such a study is Logan Creek Valley,[1] located in the western part of Reynolds County, Missouri (Fig. 10, Insert). The county itself is one of the most thoroly dissected in the state, the altitude ranging from 450 to 1700 feet above sea level. With an area of 785 square miles the county has, in 125 years of settlement, reached a population of less than 9,000. About 90 per cent of these inhabitants occupy the valleys since the stoniness, infertility, roughness, and more severe climate of the ridge land tend to discourage farming there. Most of the arable land is in use, and the only possibility for future extension is probably in fitting the uplands for pasture. The climate of the region is mild, with the mean annual temperature 54.4° F. and the average annual rainfall about 45 inches. The hill soils are residual, derived from limestone and from granite. The valleys, tho more fertile than the hills, are stony and gravelly alluvial, out of which the streams have washed most of the soluble plant foods. Cut over timber covers most of the hill land, and pasturing takes up much of the lowland; thus the most productive industries of the county are livestock raising and lumbering. Transportation has, until the last few years, been extremely poor, and many valleys not bordering improved highways are still quite isolated.

[1] Only that part of Logan Creek Valley from Ellington to a point twenty-three miles up-stream will be considered in this discussion.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

## OBSERVABLE CULTURAL FEATURES

Logan Creek Valley extends from Ellington, in the central part, to the northwestern corner of Reynolds County (Fig. 10). It presents a series of contrasts in both cultural and natural features which are quite typical of similar areas along Ozark streams. To one who makes the twenty-three mile journey from Ellington, a lumber town of 665 people and the largest in the county (Fig. 1), to Sweetwater Branch nearer the head of Logan Creek, the progressive gradation from good Ozark farms to meager homesteads is very pronounced. An improved state road follows the creek for about six miles west of Ellington, but here one must leave the highway to make his way along a creek road which is often impassable in time of heavy rains. The home in Fig. 2 is not far from the juncture of this road with the highway and is representative of the types of houses one sees in that part of the valley closer to Ellington. Notice the great stone chimney, a feature which is characteristic of the region where stones are plentiful and bricks are few. A mile or so farther on are the attractive home and well built barn (Fig. 5) owned by N. B. George, the "model farmer" of the county. Beyond this place a cobblestone bungalow suggests that here a farmer has done what many Ozarkians find it of advantage to do: he has built his home of the same kinds of stones of which he must clear his fields. Passing other houses characteristic of the better types of farm homes in the Missouri Ozarks region, one reaches a place about fifteen miles from Ellington at which such homes as the one shown in Fig. 3 begin to appear. Only once after this is a more prosperous appearing farm seen. It is twelve miles off the highway and the farthest point to which the Ellington Consolidated School bus runs. Fig. 3, then, seems to represent a transition line (Fig. 10, Line AB) from the better homes of the lower valley to quite a different type in the upper valley and its tributary, Sweetwater Branch. The road becomes increasingly poorer, good valley homes give way to run down houses perched on non-productive slopes, and the barn of the George place now seems quite foreign to the same valley in which the log structure in Fig. 6 is found. Proceeding farther, one may continue along the now almost impassable Logan Creek road or turn up the valley of one of the Logan Creek tributaries, Sweetwater Branch. If the latter, the observer will soon arrive at Uncle Jerome's and Aunt Nancy's cabin (Fig. 4). Here he finds that within a distance of only twenty-three miles,

Fig. 5

Fig. 6

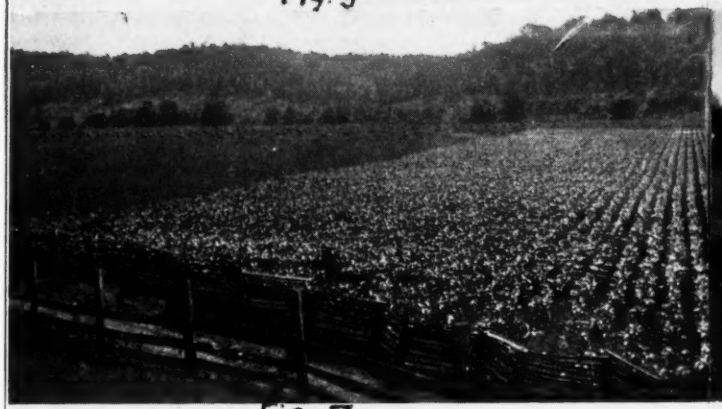

Fig. 7

Fig. 8

in the valley of a single stream, he has seen large, roomy, well built farm homes change to less pretentious, unpainted, clapboard houses, and finally become nothing more than cabins suggestive of those of the Kentucky mountaineer.

Altho the majority of the farmers in the valley are not yet converted to, or aware of, the best farming methods for the area, such as crop rotation, the use of fertilizers, the sowing of grass on the slopes, and the conversion of crop land to pasture, a difference between methods and farm upkeep in the lower and upper sections is quite noticeable. Seldom does the observer find that care has been exercised in the region near Sweetwater to see that gullies and erosion are kept at a minimum. In the lower part of the valley, however, some farmers have taken means to prevent washing and destructive meanders in the stream bed by sowing the hillsides in grass and piling dams of the ever plentiful rocks across ditches. These men are attempting to retain the precious top soil, which the farmers ten to fifteen miles up the creek are allowing to be carried away. Contrasted with the farm arrangements in most of the upper valley is the well planned farm shown in Fig. 9, where a successful attempt has been made to grass the hill slopes, the crops best suited to the region occupying only the valley floor. Corn, a crop which is greatly over-planted in the upper valley, is, on this model farm, kept at a minimum acreage; and land is given over instead to alfalfa, lespedeza, and clover. The farm supports fifteen dairy cows, twenty sheep, thirty-five hogs, and a large flock of chickens. A modern dairy room adjoins the house and a Delco plant furnishes lights and power for pumping water into the house. The owner keeps in constant touch with the county farm agent and applies new methods and ideas whenever possible. Such a farm stands out among its close neighbors, but is even more an antithesis of the types found farther up the valley.

Contrasts in farm upkeep in the two parts of the valley already referred to are almost as apparent as the differences in the types of homes themselves. Where the larger houses are more common, better fencing is also in evidence, painting is not unheard of, and outbuildings and barns are generally kept in repair. Few families are without an automobile and some of the farmers use modern machinery for cultivating the limited fields. The smaller houses farther up the creek bottom are badly run down, paint is a rarity, fences have been allowed to wash out or sag to the point of being

well-nigh useless, and outbuildings often have fallen into decay and disuse with little attempt to prevent their deterioration. Rail and paling fences are common thruout the valley, and altho wire is in a few instances now being used, replacement by wire is occurring chiefly in that part of the valley closer to Ellington.

## EXTENT, USE, AND VALUES OF FARM LAND

Not only do the types of homes and farm practices within the valley give interesting contrasts, but the extent and use of farm land presents differences no less striking. This is clearly brought out in the accompanying table, where a comparison is made between five representative farms of both the upper and the lower

LAND USE IN THE LOGAN CREEK VALLEY

TEN SELECTED FARMS

| Upper Logan Farms | Total Acres | Cultivated Land | | | | | Total Cultivated | Pasture | Woods |
|---|---|---|---|---|---|---|---|---|---|
| | | Corn | Wheat | Oats | Hay | Miscel. | | | |
| A | 80 | 16 | 0 | 6 | 4 | 14 | 40 | 0 | 36 |
| B | 71 | 17 | 5 | 4 | 0 | 16 | 42 | 3 | 24 |
| C | 80 | 18.5 | 0 | 0 | 5 | 4.5 | 28 | 0 | 46 |
| D | 240 | 46 | 0 | 13.5 | 0 | 31.5 | 91 | 25 | 120 |
| E | 80 | 21.5 | 3 | 0 | 9 | 14.5 | 48 | 0 | 30 |
| Lower Logan Farms | | | | | | | | | |
| A | 174 | 26 | 0 | 0 | 23 | 12 | 61 | 46 | 60 |
| B | 146 | 23 | 0 | 9 | 17 | 10.5 | 59.5 | 36.5 | 52 |
| C | 79 | 6.7 | 0 | 3 | 9.7 | 1.1 | 20.5 | 44 | 13 |
| D | 620 | 67.5 | 5 | 27.5 | 15 | 50 | 165 | 70 | 370 |
| E | 191 | 13.5 | 7 | 3 | 19.5 | 0 | 43 | 40 | 100 |

Logan Creek areas. Here it is seen that the average number of acres for farms in the lower section is 242, while the average for the upper section is 110, the former being more than twice as large as the latter. But notice that the difference between the average number of acres cultivated is not so great—70 as against 50 acres. Such figures would seem to indicate that the land is better in the upper region since a greater percentage of each farm there is cultivated than on the larger farms. They are, instead, a comment upon the lack of careful planning on the smaller farms, for in the Ozarks region it has been found that improved pastures show better land economy than meager attempts to cultivate crops. In keeping with such findings are the average amounts of land in pasture—47 to 6

acres. That is, the amount of pasture land in the lower valley farms is over eight times as large as that in the upper farms.

In Logan Creek Valley, as in the Ozarks region of which it is a part, the farms are usually owned by those who live on them and do not change hands very freely. It is estimated that the land values of the lower part of the valley at present (1935) average $25 to $40 an acre, and those of the upper section are approximately $10 to $15 an acre.[2] Few of the farmers thruout the area pay income taxes, most of them having little idea as to the amount of cash taken in each year.

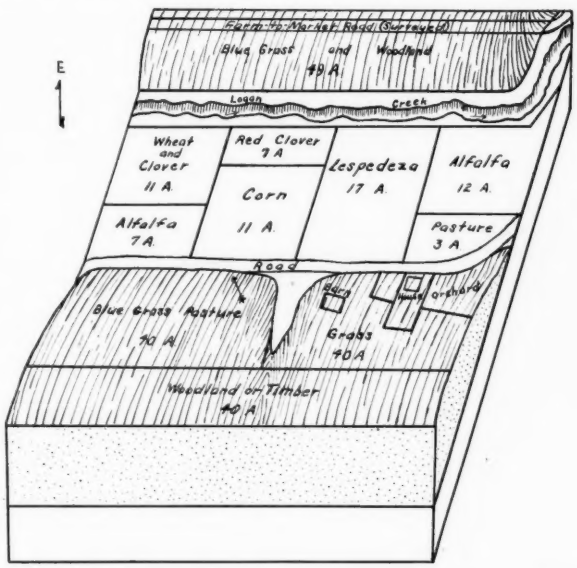


Fig. 9. Diagram of farm owned by N. B. George. The total size of the farm is 249 acres. The picture in Fig. 7 was taken at the place indicated with a star and looking in the direction of the arrow.

Thus it is seen that the homes of the lower part of Logan Creek Valley are larger, better kept, and more prosperous in appearance, as are also the outbuildings and fences; improved methods of farming, used to some extent in the lower portion, diminish greatly farther up the creek; the farms themselves are smaller and differ in productivity nearer the head of the stream; and likewise land values change perceptibly.

## Some Explanations for Cultural Contrasts

Explanations for these contrasts in human adjustments along the valley are strongly suggested by a consideration of distances from the community's trading center, differing widths of the valley, and soil productivity. Ellington is and always has been the closest trading center for the Logan Creek settlers, and as a result those living nearer to the town find intercourse with its people much

[2] Theodore Joule, Reynolds County Farm Agent, 1935.

easier than the more remote valley inhabitants near Sweetwater Branch. In a region with such poor transportation facilities, distances have been an important factor in isolating the peoples and thus affecting their conditions of living. Altho a new farm-to-market road is now being constructed to the mouth of Sweetwater, until now an old, narrow, creek-bottom road has had to serve. When wagons were the only means of transportation farmers in the upper portion of the valley found the way too long and laborious to jour-

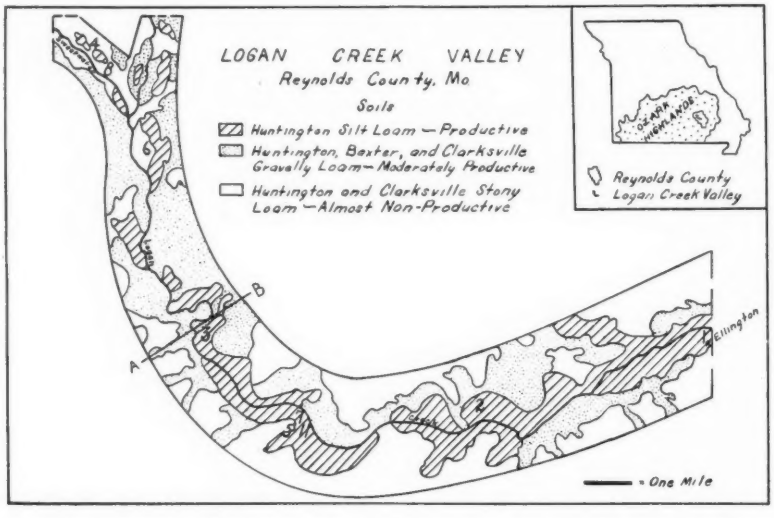


Fig. 10. Generalized soil and location map of Logan Creek Valley. Numbers represent places at which the pictures were taken. The change in the width of the map from Ellington to Sweetwater Creek is not intended to show the width of the valley since it widens and narrows often; but, in general, the map indicates the proportional decreasing width of the valley area from the crests of its bordering hills. Thus the stony loam (white) is mostly hill soil, while the silt loam (lined) is valley bottom soil.

ney to town frequently. Even with present day automobile or truck traffic, unusually heavy rains often bring the creek up or wash the road out to such an extent that the area is still effectively isolated. As a result, lack of contact with the only population center within many miles has played a major part in the social and economic backwardness of these people as compared with their neighbors living in closer touch with town life.

In addition to the isolation of the upper valley, a second factor in its backwardness is the gradual narrowing of the valley as one goes up stream. The width of the valley floor, which is approximately two-thirds of a mile at Ellington, has diminished by one-

half at the N. B. George farm, and has narrowed to two hundred yards along Sweetwater. It is to be expected then, if the valley soil is the most desirable land and is a measure of the worth of a farm, that farms will become increasingly poorer and limited in area as the head of the valley is approached.

No less important than the amounts of land available for farming is the productivity of the soil. Reference to the soil map in Fig. 10 confirms this statement. Here it can be seen that the Huntington Silt Loam, the best of the soils of the region, with one exception borders the creek continuously from Ellington to the transition line AB, where better homes begin to give way to poorer ones. Notice how scattered these better deposits are from this point on. Much of the creek now becomes bordered, not by silt loam nor even by intermediate soil, gravelly loam, but by stony loam, to a great extent non-productive. Fig. 8 shows this type of soil along Sweetwater Branch, where the stones are plainly visible. The numbers on the soil map indicate the points at which the pictures accompanying this article were made. They bring out clearly the fact that the better farms are located in the areas of better soil, and that the poorer farms are found where good soil is restricted in area. It is evident, then, not only that the meager farmsteads of the upper Logan Creek Valley are more isolated and smaller, but also that the worth and productivity of the farm must necessarily be small since the amount of cultivable soil is greatly limited. When the owners of such farms come to the realization, as some of their neighbors down the valley have, that the best land economy here should be less cultivation and more pasturing, one may dare to predict that, even if their economic position does not approach the level of their more fortunate neighbors, at least it may exceed that of their fathers who farmed the same land before them.

# AN EXPERIMENT IN INDIVIDUAL VERSUS GROUP STUDY OF PICTURES IN GEOGRAPHY

ELIZABETH STADTLANDER
State Teachers College, Slippery Rock, Pennsylvania

The teacher of geography is always searching for new pictures to illustrate her teaching. The magazines, newspapers, travel advertisements, and commercial photographic companies are sources of the supply. The value of these pictures for teaching purposes creates a problem. Are individual pictures worth the time consumed in locating ones of high geographic value? Is their utility great enough to warrant the filing space required? Do they serve their ultimate purpose as a device for informing children as well as or better than the written word?

Geography teachers feel that the answer to these three questions is without exception in the affirmative. There is no better way to describe a place or an activity than by a picture.

This being acceptable, the question of how to present these pictures arises. Of what value are individual study pictures? How much greater value is there in a group picture presentation? To discover the relative value of individual pictures versus group pictures an experiment was made with fifth grade geography classes.

The children were divided into two homogeneous groups. One group which we shall call Group A was composed of superior and high average children; the second group or Group B was composed of average and low average pupils. Two complete units were taught, one on the Mountain and Plateau States of the United States and the other on the Pacific Coast States. For each unit two identical sets of twenty-five pictures were used. Each unit had lantern slides and stereographs which were used as individual pictures. The latter set of pictures had a short discussion of the region shown, a few leading questions, and a title for each picture. The lantern slide, of course, had no marks of identification for the chidren. The teacher prepared a list of questions to be answered by each picture. The group using the lantern slides had to answer the questions from their store of knowledge, while the individual picture study group had the advantage of using the printed matter on the picture. The method of presenting the pictures was as shown in the table at the top of page 361.

| GROUPS | UNIT | |
|---|---|---|
| | Mountain and Plateau States | Pacific Coast States |
| A | Lantern Slides | Stereographs |
| B | Stereographs | Lantern Slides |

By thus rotating the type of pictures used the lacking of equated grouping was eliminated. In both groups, however, the textual material, the teacher, and the tests were identical. The variation in presentation was a result of the type of picture used for the unit. In using lantern slides the entire group studied the picture, read the available material, and re-studied the picture. In using the individual pictures the children were reading, studying maps, or being otherwise gainfully occupied while the pictures of the day's topic were circulating around the class. In the use of individual pictures the teacher was constantly at the command of the pupils in order to help them to study the picture and find the geographic details.

In this way both groups were confronted with the problem of group study and individual study of the pictures for the units. The basis of comparison for the groups was a series of three objective tests of 100 items each, four items for each picture. The Initial Test was given to both groups before they had studied the pictures. It was of the one word answer type. Group A was given the test with lantern slides because they were to use lantern slides in their first unit. Group B used the stereographs which were incased in a folder so that the children would not be able to see the title or printed matter. In the second unit the procedure was reversed for the groups. A second test called the Progress Test followed after a study of the pictures of a topic. For example, if four pictures were concerned with lumbering, that part of the progress Test was administered after the lumber topic has been exhausted. This Progress Test was in the form of multiple-choice questions. The tests were checked and the papers returned to the pupils in order that they might see their errors. The pictures were used again to help the children to correct their mistaken interpretations. The Final Test was of the true-false type. It came at the end of the unit after the entire region had been summarized and the children had discussed all phases of the locality and its work pattern again. Each of the

tests was constructed to test the development of the children in reading into and out of pictures the geographic facts and relationships told therein.

The checking of these tests revealed some facts concerning the relative value of lantern slides and individual study pictures. The Progress Test will not be considered in the analysis of the data because it served as a self-check for the pupils rather than a measuring rod for the type of pictures. The analysis, however, of the Initial Tests and Final Tests in Units I and II is as follows:

A COMPARATIVE ANALYSIS OF GROUPS A AND B

| GROUP A | | GROUP B |
|---|---|---|
| 25% | Percentage of increase in interpretation between Initial Tests for Units I and II | 15% |
| 0% | Percentage of increase in interpretation in Final Tests for Units I and II | 25% |
| 55% | Percentage of increase in interpretation after studying lantern slides between Initial Test and Final Test of Unit | 45% |
| 35% | Percentage of increase in interpretation after studying individual pictures between Initial Test and Final Test for Unit. | 50% |

1. Five-sevenths of Group A improved in Initial Test II with individual pictures after using lantern slides for the first unit.

2. Two-thirds of Group B increased their scores in Initial Test II with lantern slides after using individual pictures for the first unit.

3. In the Final Test II one-fifth of Group A received lower scores when using individual pictures for Unit II than when using lantern slides for Unit I.

4. In Final Test II one-third of Group B received higher scores when using lantern slides for Unit II than when using individual pictures for Unit I.

5. In Group A 96 per cent of the class improved between Final Tests of Unit I and II; thus showing that the ability to interpret geographic facts in pictures develops with the use of both kinds of pictures.

6. In Group B 94 per cent of the class improved between Final Tests of Units I and II by using both types of pictures.

7. In both groups every child improved from 25 per cent to 50 per cent in ability to interpret facts from pictures.

8. For both groups the medians show an increase of 50 points between Initial Test I and Final Test II.

## CONCLUSIONS

Conclusions to be reached from this experiment indicate the following facts:

1. Children are better able to interpret facts from a lantern slide than from an individual picture when used as a class device.

2. More children acquire geographic knowledge with the use of lantern slides and the variance between the group is not as great as with individual pictures.

3. Children seem to profit more from group discussion and by others' errors than from individual teacher help.

4. Average and low average children gain more ability in geographic thinking by use of lantern slides.

5. Superior and high average children do not increase their interpretative ability with individual pictures more than with lantern slides or group picture methods.

6. All types of children gain in their geographic reasoning thru pictures altho the increase with the lantern slide is greater.

7. Children enjoy geography more when pictures outside of the textbook are used.

## SUMMARY

In the foregoing analysis and conclusions the term "lantern slide" has been used as a basis for comparison with individual pictures. By the term, the writer means any type of large picture which may be used as a group method of presentation. The old type of "Magic Lantern" which reflects a picture or postcard on a screen may serve the same purpose as the newer type of projection lantern. By individual picture is meant any type of small picture which must be handled by one person at a time in order to be fully and carefully observed and studied.

A further recommendation for the use of pictures lies in the fact that more than 50 per cent of Group B had been failures or were failing in one or more subjects. The failure was partially due to lack in reading ability. These failing students would have been failures in geography also if the subject had been based on gaining their information from printed matter alone. As a result of the use

of pictures, these children gained information, learned to talk intelligently about a region or activity, because they could visualize it, learned to read from pictures what they could never have learned to read from textbooks, and felt a sense of achievement and enjoyment in the subject.

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## A STORY OF ONE DAY IN HUNTSVILLE, TEXAS*

**M. J. Fields**
Huntsville, Texas

A damp solid blackness seemed to press closely against the window panes, as the muffled sound of the six o'clock whistle penetrated the morning air. No stars were visible, and even the street light looked dim and blurred. Night seeming in no hurry to pass away, stole about ten minutes of the day's light, judging from the time a certain object across the street was first visible.

The thermometer on the porch showed a reading of 52° F., while the barometer registered 29.8 inches. The fragrance of wet pines reached me as I stepped into the yard, and I noticed that the wind was blowing gently from the southeast. Small drops of water were dripping from the leaves of the near-by trees, caused by the light mist that was falling. In the distance, here and there, flickering lights appeared like tiny stars hanging low in space.

A sudden chilly feeling made me shiver, and realizing that I had probably stood in the dampness too long, I went indoors, turned up the fire, and slipped into a light wool dress for early morning classes. Turning on the radio to get the morning news reports, such an outburst of static came forth that I hurriedly switched it off, but having at least gained the information that stormy weather was not far away.

*Having Eyes To See, Do We See?

That one day's observations, intelligently interpreted, can yield a wealth of cultural enjoyment and serve as an integrating center, is shown by the following paper, written by a sophomore in Sam Houston State Teachers College in response to an assignment given to a class studying the geographic basis of society. The paper is offered for publication in the belief that any teacher anywhere, on any day, could direct such observations (or others equally as fruitful), from the sixth grade on up.

Education not only prepares for life after college, it enriches one's ability to live fully each day in the midst of the school experience. Is your education yielding rich returns to you each day?—Harriet Smith, instructor in charge of the class

The first rays of daylight revealed the sky covered with moderately low, heavy, dull gray clouds of the nimbus type, which seemed rather undecided as whether to rise or to send forth the gathering rain. These clouds were evidently formed by the gradual cooling of the inflowing winds. But just before sunrise the clouds withdrew to some extent, showing cirro-stratus clouds overhead, and broke into various groups resembling cumulo-nimbus clouds around the horizon. The sun was not visible as it rose, but very faint colors edged the clouds in the east. This condition changed, however, within thirty minutes and the sky once more became covered with a thick layer of dark rain clouds.

The concrete walks and the ground outside were wet, but no water was standing to indicate that heavy rain had fallen during the night.

Consulting the Daily Weather Maps, issued by the United States Weather Bureau, I discovered that on December 3, two days earlier, a low pressure area had developed on the western coast in the vicinity of San Francisco. On December 4, it had moved across California and into western Arizona; and so, on the following day Texas was covered by this same low pressure area. The moisture filled air was rising and was being cooled by expansion, as well as by contact with the cooler earth.

Heavy rain started falling about 8:30 A.M. and continued a downpour until about 10:30 A.M. At this time the clouds seemed to shift again, appearing thinner and higher overhead, but dark and heavy toward the eastern horizon. The barometer showed a slight rise.

From about 10:30 to 11:30 A.M. was the brightest part of the day, but no sun appeared. At 12:15 P.M. heavy rain began falling again, and continued for the most part thru the remainder of the day. Just before time for the first afternoon class the College Campus took on an added note of interest with its array of new boots and various colored raincoats and umbrellas.

About 2:00 P.M. a faint but lovely rainbow was seen toward the northeast. Somewhere the sun, moving toward its southwest setting position, was shining thru the clouds and on the falling raindrops. The clouds at this time looked as if a norther was soon to arrive. The wind rose slightly but continued from the southeast. The hardest rain of the day fell between 2:30 and 4:00 P.M.

Erosion played a definite part in this day's events. At one place on the campus a ditch was cut so deep that it had to be filled later

with rocks and clay. Big ditches and holes were washed out, and many miniature alluvial fans, sandbars, islands, capes, and peninsulas were seen in an adjoining street. This condition was the result of the fact that the structure of the earth in this locality is unconsolidated sand and clay, and therefore wears away easily from the hillsides.

The water rose so high in the creek which crosses the Sam Houston Park, that all of the dams, terraces, and other forms of construction made by the children at play, were entirely swept away. It was found later that much of the sediment carried by this stream, above the park, was deposited in the park lake. Many similar conditions were found in other parts of the city. However, in places where the grass or shrubbery had gained a good foot-hold, the roots of the plants held the soil in place, and erosion was very slight.

The rainfall for the entire day, according to the official downtown report, was three inches. The rise on the Trinity and San Jacinto rivers was reported as one-fourth foot in localities above Huntsville, and about four feet some fifty miles below.

Evaporation was fairly rapid. The temperature rose eight degrees above that of the previous day, and, altho the sun was not shining, the walks and other objects outside dried off in a reasonably short time after the rain ceased.

This area, which is only about 400 feet above sea level, lies in the path of the westerly winds in winter; but since the Atlantic Ocean lies relatively near on the east, and the Gulf of Mexico is just to the south, the moisture was evidently brought from these bodies of water.

Night closed in quickly after sunset, and the thermometer dropped to 54° F. by seven o'clock. The temperature chart kept during the day showed the unusual fact that the highest temperature for the day was reached at 12:00 noon. This was due to the warming condition which existed just before noon, and the cooling rain which fell just after noon.

Altho the moon rose at 1:55 P.M. and did not set until 2:12 A.M., little effects from it were noticeable, because of the thick heavy clouds. Had the night been clear many interesting star groups could have been observed.

As the night—cold, dark, and still—settled down over the town like some huge enveloping creature waiting for the dawn of another

day, I made my temperature graf for the day and then pondered over the powerful forces of the universe, and I began to understand, at least in a little way, that from a geographical point of view, it is to a large extent man's increasing ability to utilize wisely the natural environment or overcome its handicaps that marks his progress.

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## USES OF RIVERS TO MAN*

VIRGINIA WILLCUTS
State Teachers College, Duluth, Minnesota

Let us consider rivers in the following way—How may uses of rivers to man, can you name?

I gave this question to my sixth grade pupils. They were told that they might have ten minutes in which to jot down as many uses as they could think of. It was suggested that they think of the different rivers that they had studied, so far in geography, and consider how different some are from others.

At the end of the ten minutes, the pupils were directed to lay down their pencils. One individual then another was asked to give the uses he had in mind. These were listed on the blackboard.

As the work went on, interest grew because many of the answers were such surprises.

At the close of the first day's lesson, pupils were encouraged to bring up their question at home and to see how much added information they could get. Reports were given on the second day. The list grew considerably.

At the close of the second day's lesson, certain pupils were to consult reference books to clear up some of the questions that arose and which the members of the class could not answer.

On the third day, the projection lantern was used to present pictures from which pupils could read uses not yet named.

At the end of the period the pupils had completed the following list.

USES OF RIVERS TO MAN

1. Furnishes power
   a. Hydroelectric
   b. Wheel
   c. Steam
2. Carries soil
   a. Forms rich delta land
   b. Deposits it along valley floors
3. Furnishes food
4. Irrigation
5. For household purposes

* Answers compiled by pupils of the sixth grade.

6. Highways
   a. For boats
   b. For skating
   c. For streets
7. Natural boundary
8. Carries logs
9. Beauty
10. Pleasure
11. Removes soil and exposes minerals
12. Makes an excellent place for a city
13. Makes a wide valley floor
14. Makes soil by wearing away rock
15. Drains the land
16. Landing for airplanes
17. Connects bodies of water
18. Refrigeration (ice)
19. Produces fish for fertilizer
20. Produces shells
    a. Pearls (gems)
    b. For souvenirs
    c. Mother-of-pearl
    d. For dishes
21. Extinguishes fires
22. Produces fur-bearing animals
23. Gives moisture to the land
24. Carries along minerals (gold, tin, etc.)
25. Carries along precious stones (diamonds)
26. Carries along seeds
27. Affords good harbors
28. Gives water to be used in factories for washing materials (wool, beets, etc.).
29. Provides fresh water for lakes
30. Religious influence

# EDITORIAL NOTES AND NEWS

Several hundred were in attendance at the two sectional meetings of the Minnesota Education Association sponsored by the State Council of Geography Teachers. George H. Primmer of the Duluth State Teachers College presided. Papers were presented by R. O. Hughes, Curriculum Director, Board of Education, Pittsburgh; George J. Miller, Mankato State Teachers College; and by D. H. Davis, University of Minnesota. A field trip over the Twin City area was conducted by Richard Hartshorne of the University of Minnesota on Saturday, special attention being given to the rail pattern and commercial and industrial cores as related to the topography and drainage lines of the area. The fact that a bus load of people participated in this trip, after the regular sessions had closed, indicates this new feature of the State Council meetings might be adopted as a regular feature of future programs.

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David J. Swartz, chairman of the geography section, New York Society For The Experimental Study Of Education, informs us that geography is now being taught in 8A and 8B in junior high school. There is also a license in economic geography in the high school, the first course of which is about to be presented by a committee. In January, the Society will devote an entire meeting to geography in the elementary and secondary schools. At other meetings geography will share a part of the program on education. Administrators as well as geography teachers are participating in these programs reflecting the rapid strides being made by geography in the curriculum.

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One of the finest stands of virgin forest left in the Piedmont owes its existence to the foresight of a French Huguenot physician who in the eighteenth century endowed an industrial school for 24 children with 1000 acres of timber in McCormick County, South Carolina. The tract was to remain forever in forest in order to supply fuel to the farm and in time contribute to its support. Recently the U. S. Forest Service joined with the State Forestry Commission and the school in a plan of management for sustained yield. An area of 125 acres of the oldest timber has been set aside, never to be cut. Sample plots for experimental purposes have been established. Timber sales are by contract, with a guarantee that the felling be done with the least possible damage to the remaining trees and young growth. Limbs, topwood and trees removed for stand improvement will be cut for fuel for the school. The farm is becoming a model demonstration tract for those interested in getting a sustained yield out of their own farm wood lot, and also attracts visitors desiring to see excellent virgin timber nearing the two century mark.

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"Texas—In Perspective" is the title of a series of articles by Elmer H. Johnson featured in the *Texas Business Review,* Bureau of Business Research, the University of Texas.

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The Committee on Cultural Relations with Latin America has announced the Twelfth Seminar in Mexico to be held in July. A new feature will be the First Festival of Pan American Chamber Music, sponsored by Elizabeth Sprague Coolidge and directed by Carlos Chavez. In addition, the Committee is sponsoring a two weeks' Seminar in Guatemala in midwinter. Further information may be had from the Committee's New York address at 289 Fourth Avenue.

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According to a release from the U. S. Department of Commerce, this year's yield of tung oil from trees scattered over Florida, Georgia, Alabama, Mississippi, Louisiana, and

Texas will be nearly two million pounds. Since the first commercial plantings of the tung oil tree were in Florida that state led in acreage, but now Mississippi holds the lead. Much active research in the laboratories of our paint and varnish industries is finding new uses for tung oil. Our annual consumption is about one hundred million pounds. The soybean, one of our most promising crops, does not yield oil which can supplant tung oil, tho it along with fish and linseed oils may be combined with tung oil or other quick drying agents.

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Capitalizing on snow covered slopes of two or more miles for ski runs and on natural hot springs for swimming pools, and sunny days in a sheltered valley, a modern alpine hotel will be opened by one of our chief railways this winter in the Sun Valley of the Sawtooth Mountains of Idaho.

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According to C. S. Thornthwaite, head of climatic research activities of the Soil Conservation Service, U. S. Department of Agriculture, in a report to the Upstream Engineering Conference held recently in Washington, D.C., the intensity of rainfall and wind velocity during a single storm varies greatly from locality to locality within the storm area. The report is based on new measurements made by two hundred farmers on relief in Oklahoma, living three miles apart, supplied with weather instruments which they were required to read simultaneously on the hour, every fifteen minutes during rains. Their records made it possible to relate rainstorm phenomena to wind velocity and direction and temperature. Spottiness of rainfall and extremely variable wind velocity have thus been disclosed. The alternating high and low wind velocities may explain the unequal wind erosion in the same or adjoining fields. The data afford another approach to the problem of upstream reduction and control of flood waters.

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A meeting of the Geography Section of the Maryland State Teachers Association was held in Baltimore, Maryland, on Friday, October 23. Miss Ida V. Flowers presided. Reports were given by the standing committees on Curriculum, Textbooks and Equipment, followed by an address by Dr. Isaiah Bowman, President of Johns Hopkins University, on "Trails and Settlements of the Central Andes."

# GEOGRAPHICAL PUBLICATIONS

Howard W. Odum. **Southern Regions of the United States.** 664 pp., 601 maps, charts, tables. The University of North Carolina Press, Chapel Hill, 1936. $4.00

The growing interest in regions among social scientists is exemplified by this monograph which is studied with more than ordinary interest. The book overlaps considerably the field of regional geography with emphasis upon elements which Brunhes would classify as being "beyond the essential facts."

The monograph is remarkable in many ways and first of all for its organization. Part I: "The Composite Picture: A Syllabus and Summary" consists of 273 numbered paragraphs while in the eleven chapters of Part II these many conclusions, problems and observations are elaborated. This method of presentation necessitates much repetition likely to appear superfluous to the geographer however desirable it might be for readers unfamiliar with the regional method. In both Parts I and II the author is broadly concerned with constructing a "picturization" of the South and its place in the national scene, done with obvious sincerity of purpose, impartiality and a ready understanding of sociological problems, an imposing task made the less difficult by a minimum of editorial restrictions upon space. Reflecting the ample space provisions are the rich display of 329 maps mainly based on new data or "indices" supplemented by 272 diagrams and tables. The tremendous amount of research and labor involved in the preparation of this material can be appreciated by the geographer who for that reason will wonder why those very data and charts were not more definitely incorporated in the discussion. The charts and tables occupy the even-numbered pages more or less apart from the written discussion but convenient to the reader who wishes to consult them. Part III includes the bibliography, lists of maps and charts and acknowledgments especially to the Southern Regional Committee of the Social Science Research Council.

The author depends principally upon political lines for delimiting regions; thus the South is defined as the southeastern states excluding Maryland, West Virginia and Missouri. Attempts to avoid political lines are not always impressive as, for example, the map on which the practically non-existent "shelter-belt" is adopted as the western limit of the Southeast. Several small-scale maps of the Southeast show its subregions said to be 27 in number. In as much as many of the limits set to subregions do violence to boundaries heretofore generally accepted and in view of the exhaustive analyses upon which these maps are based, geographers are faced with the task of reinspecting the validity of earlier regional delimitations.

A considerable portion of the volume is an elaboration of the theme that the Southeast is a collection of states and regions of abundant natural wealth and opportunity and human inadequacy and deficiency. Again and again reference is made to the South's "superabundant" natural wealth and in detailing the component parts of the natural endowment the author resorts to superlatives, many of which are unwarranted. The impressionism which enters into the discussion of the natural environment contrasts strangely with the objectivity of treatment accorded other items. Few recognized authorities are cited in support of many more or less extravagant statements, reference being made instead to such writers, competent in their own fields, as Sherwood Anderson and Walter Lippmann. To an unnamed geographer is attributed the highly questionable statement that the Southeast is "one of two regions on this earth and only two which will outdistance all others. . . . Above all the other regions they are the gardens of the world." It is elsewhere stated that the Southeast "lies within the bounds of that magic area which receives more than forty inches of average annual precipitation."

Beginning with Chapter 6 the text, to the geographer, becomes more convincing and interesting. The materials dealt with lie largely beyond the observable landscape features and thus are usually excluded from studies in regional geography. The volume as a

whole possesses high literary merit and, with the exceptions indicated above, is written with rare breadth of view. In reflecting upon the book, whose concluding chapter is titled "Towards Regional Planning," one concludes that, tho the geographer in his own treatments of regions tells the basic truth yet he does not and perhaps is not equipped to tell the whole truth.

*University of Minnesota* RALPH H. BROWN

Charles F. Brooks, A. J. Connor, and others. **Climatic Maps of North America.** Folio of 26 maps, 17″ x 22″. Published by Blue Hill Observatory, Harvard University Press, Cambridge. $3.00, postage paid.

For the first time, climatic maps of North America as a whole, including Greenland and the Caribbean, set forth in detailed thoroness the seven elements: temperature, pressure, rainfall, snowfall, humidity, cloudiness, and thunderstorms. The 26 maps reproduced with their original legends from the new world compendium of climatology (Köppen-Geiger, Handbuch der Klimatologie) are well gotten up on durable grade white bond—with manila cover.

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Miss Edwards is one of the well-known educators in California. As teacher, principal, county rural supervisor, and city supervisor she has always made an impression wherever she has taught. This book is a result of a trip to Japan. Its content has been checked by competent Japanese, and it is authentic in all of its description of life and customs in Japan.—*A. L. A. Booklist.*

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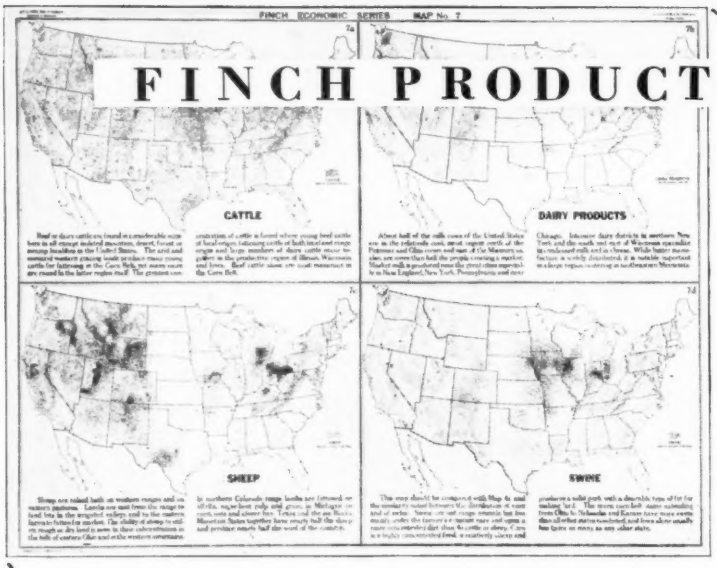


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# ANNUAL MEETING OF THE NATIONAL COUNCIL OF GEOGRAPHY TEACHERS

THE November issue of the JOURNAL carries, on pages 327 and 328, the program for the next meeting of the National Council. The meeting will be held in Syracuse, New York, December 29 and 30. All sessions will be in Hotel Syracuse. You will find in the program something of professional interest to you whether you teach in the grades, high school, or college. A wide variety of papers will be presented, each one dealing with some specific phase of geography teaching.

The National Council of Geography Teachers is the largest society of geography teachers in the United States. Many states have State Councils which are affiliated with the National Council and have as their aims the improvement of geography instruction in their respective states. State Councils should have representatives at the national meeting so that they may keep informed as to policy and compare notes on the work being done in the different states.

The National Council invites all geography teachers, whether members or not, to come to its annual meeting, to gain from the program help in subject matter and method, to share the inspiration which comes from a large group of men and women working together for a common cause, to contribute to the discussions and the plans for future work. Especially are those urged to come to the meeting who work alone or in very small groups, where the stimulus of discussion and disagreement is lacking.

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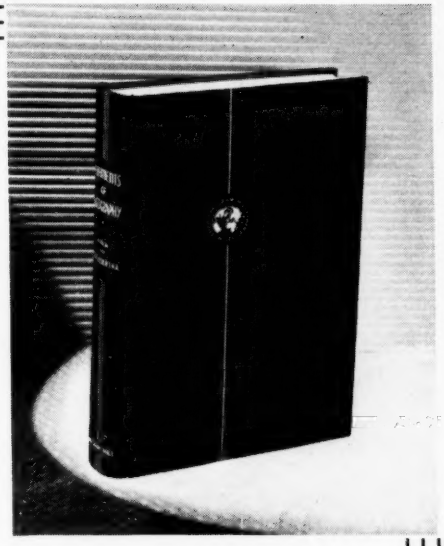

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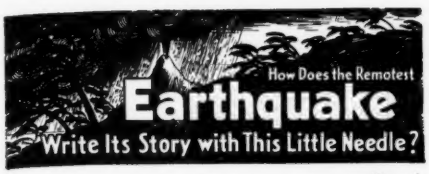


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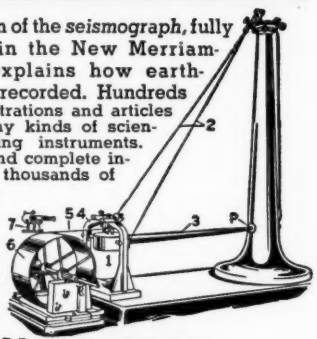


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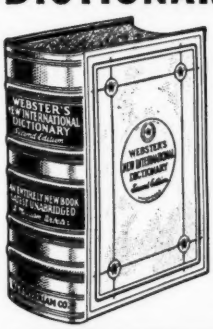


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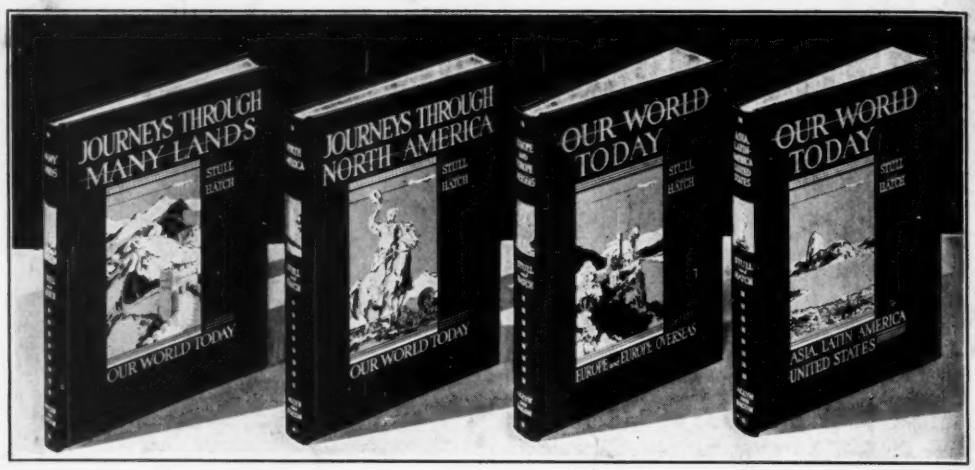


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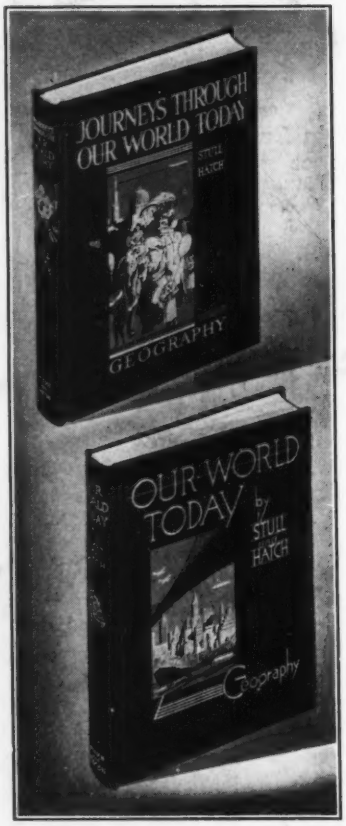


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